

# STUDIES ON LOW METHOXYL PECTINS

A THESIS SUBMITTED TO THE UNIVERSITY OF MYSORE  
FOR THE DEGREE OF  
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BY

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CERTIFICATE

I hereby certify that the thesis on "Studies on Low Methoxyl Pectins" submitted by Smt. Rajni A. Padival for the degree of Doctor of Philosophy of the University of Mysore, is the result of research work carried out by her in this Institute under my guidance.

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*Manjrekar*  
(S.P. Manjrekar)  
Guide for Research

## PREFACE

With the advent of low methoxyl pectins, a greater flexibility has been achieved in obtaining gels to meet specific requirements. Various other applications have also been suggested for low methoxyl pectins.

Lime (Citrus aurantifolia.) is an important source of pectin, containing 15-30% in the peel on dry weight basis. High methoxyl pectin is being commercially produced in the country based on a process developed in the Central Food Technological Research Institute, Mysore, India. It was, therefore, natural to extend this work to the preparation of low methoxyl pectin from lime peel. The present investigation relates to (i) the standardization of procedures for preparation of low methoxyl pectin by acid and alkali deesterification procedures, (ii) study of factors influencing the gelation characteristics, (iii) changes during storage in relation to water activity and (iv) their use in the stabilization of cloud in citrus beverages and preparation of fruit jams.

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## ABBREVIATIONS USED

AMFB	-	Ash and Moisture Free Basis
EMC	-	Equilibrium Moisture Content
ERH	-	Equilibrium Relative Humidity
GA	-	Galacturonic Acid Units
GA-Ca	-	Galacturonic Acid bound by calcium
GA-COOH	-	Galacturonic Acid with free Carboxylic Groups
GA-COOCH <sub>3</sub>	-	Galacturonic Acid with Esterified Carboxylic Groups
HMP	-	High Methoxyl Pectin(s)
hr	-	Hour(s)
I.V.	-	Initial titre value
LMP	-	Low Methoxyl Pectin(s)
MeO	-	Methoxyl Groups
mg calcium	-	mg(s) of calcium per gram of LMP
RH	-	Relative Humidity
RT	-	Room Temperature
S.V.	-	Saponification titre value
TSS	-	Total Soluble Solids
≈	-	Approximately
>	-	Greater Than
<	-	Less Than

Gel strength expressed as number in the text is in terms of ml. H<sub>2</sub>O